ARCS

Remedial Planning Activities at Selected Uncontrolled Hazardous Substance Disposal Sites in Region I

Environmental Protection Agency
Region I

ARCS Work Assignment No. 10-1JZZ

Fiber Materials Incorporated
Biddeford, ME
MED048268890
TDD# 9108-112-ATE

Preliminary Assessment-Plus
Final Report

September 1992

TRC Companies, Inc.

TAMS Consultants, Inc.
PEI Associates, Inc.
Jordan Communications, Inc.

PRELIMINARY ASSESSMENT PLUS
FIBER MATERIALS INCORPORATED
BIDDEFORD, MAINE

MED048268890

FINAL REPORT

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region I
90 Canal Street
Boston, Massachusetts 02203-2211

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EPA Region:	I
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INTRODUCTION

The TRC Companies, Inc. (TRCC) Alternative Remedial Contract Strategy (ARCS/Region I) team was requested by the Region I U.S. Environmental Protection Agency (EPA) Waste Management Division to perform a Preliminary Assessment Plus (PA-Plus) of Fiber Materials Incorporated located at 5 Morin Street (formerly A Street), Biddeford, Maine. Tasks were conducted in accordance with the ARCS contract, PA-Plus Scope of Work and Technical Specification provided by the EPA under Work Assignment No. 10-1JZZ which was issued to ARCS/Region I on August 27, 1991. This PA-Plus report was completed as part of EPA's Environmental Priorities Initiative (EPI), a joint project overseen by the Resource Conservation and Recovery Act (RCRA) program and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) program, more commonly known as Superfund.

Background information used in the generation of this report was obtained through file searches conducted at the Maine Department of Environmental Protection (MEDEP) and EPA, telephone interviews with town officials and individuals knowledgeable of the property history and characteristics, and conversations with other Federal, State, and local agencies. Information was also collected during the ARCS/Region I onsite reconnaissance which was conducted on June 11, 1992.

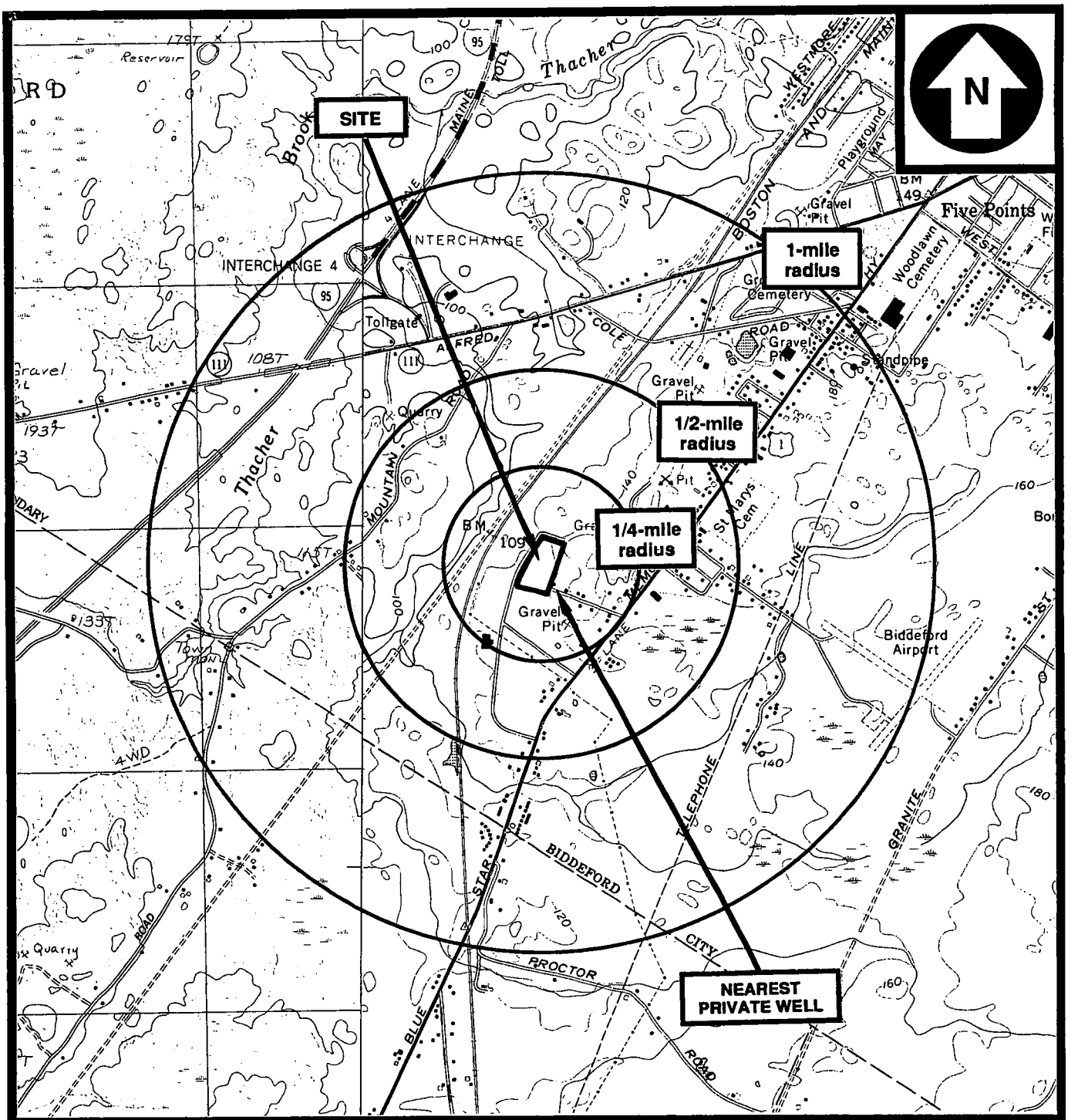
This package follows the guidelines developed under Superfund. However, these documents do not necessarily fulfill the requirements of other EPA regulations such as those under RCRA or other Federal, State, or local regulations. The PA-Plus provides a preliminary screening of facility operations. The EPI represents an integrated RCRA/CERCLA approach to assessing RCRA facilities utilizing procedures that combine elements of the Superfund Preliminary Assessment (PA) and the RCRA Facility Assessment (RFA). Under the EPI, current and former hazardous waste treatment, storage and disposal facilities regulated by the RCRA program are being evaluated to determine whether corrective action may be warranted. The PA-Plus is a limited effort and is not intended to supersede more detailed investigations.

SITE DESCRIPTION

Fiber Materials Incorporated (FMI) is located at 5 Morin Street, Biddeford Industrial Park, Biddeford, Maine. The point of access of the property is positioned at approximately 43°28′13″ north latitude and 70°29′28″ west longitude (±0.500 seconds) (see Figure 1). The location was determined from the interpretation of the U.S. Geological Survey Quadrangle maps (USGS, 1975).

FMI has two manufacturing plants in Biddeford, ME. The facility which is the focus of this report is located in the Biddeford Industrial Park. The other facility is located on High Street in the Airport Industrial Park. The FMI Airport Industrial Park facility has a separate EPA ID number which is MED985468990. The FMI Biddeford Industrial Park facility is EPA ID number MED048268890. Although the two sites are in close proximity, they operate independently.

The FMI facility is comprised of five buildings (see Figure 2). Building 1 is actually one structure with three buildings attached together. Each of the component buildings making up Building 1 were built at separate times and are currently referred to as Work Areas. Work Area 1 (formerly known as Building 1) was built in 1975 and has an area of 20,000 square feet (ft^2). Work Area 2 (formerly Building 2) and Work Area 6 (formerly Building 6) were added in 1976 and 1979-1980 respectively. Work Area 2 contains 13,000 ft^2 and Work Area 6 contains approximately 13,200 ft^2 completing what is currently called Building 1 which is located in the northwest corner of the site. Building 3, located east of Building 1, was built in 1977 and has an area of 20,000 ft^2. Building 4 is on the east side of the property, and is south of Building 3. It is a two story building which was built in 1977/1978 and occupies 60,000 ft^2. Building 5 is located on the southeast corner of the site, was built in 1979/1980, and has an area of 20,000 ft^2. Built in 1980, the #1 Hazardous Materials Storage Building along with the Nitrogen Storage Area is located near the northeast corner of the site. The #1 Hazardous Materials Storage Building has an area of approximately 600 ft^2.



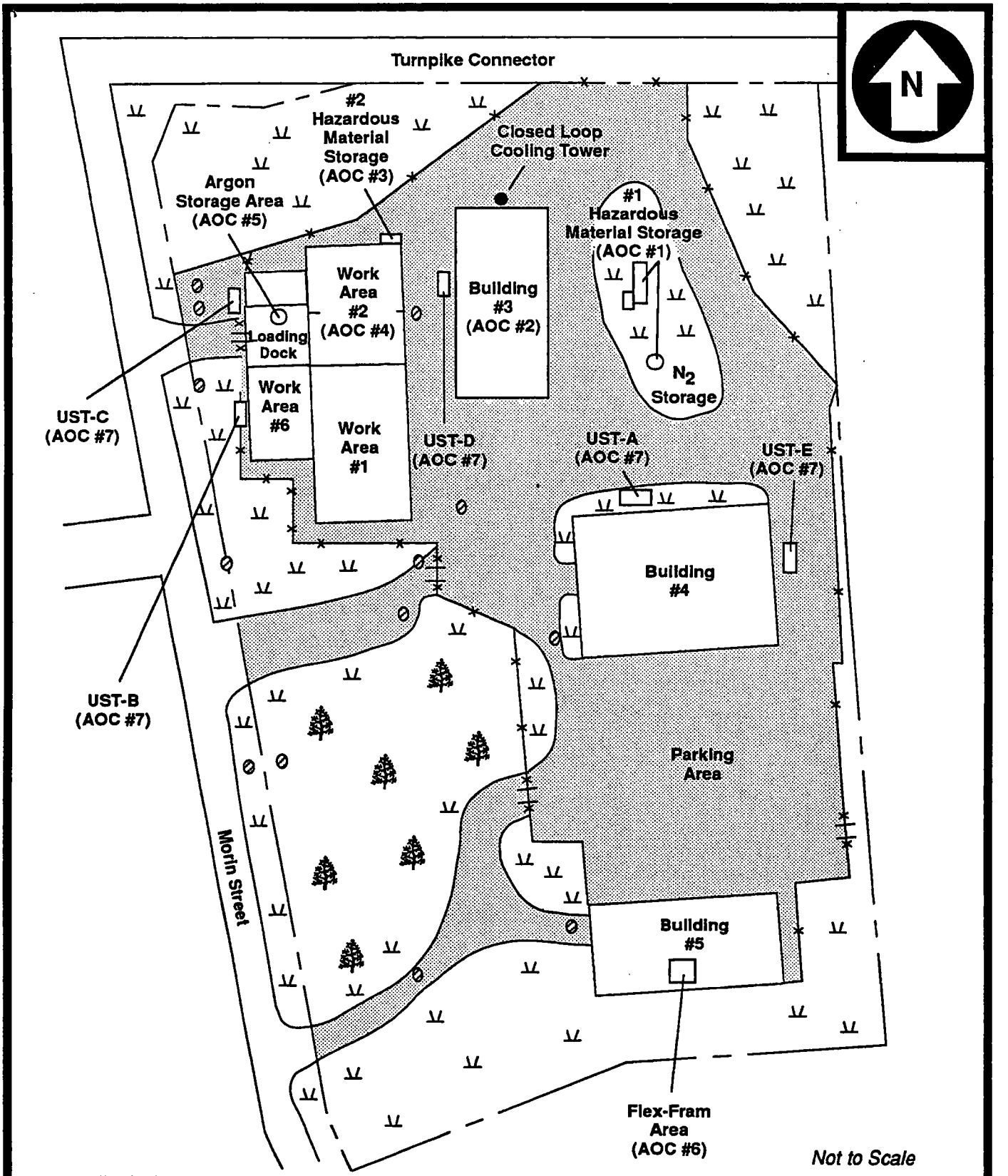
BASE MAP IS A PORTION OF THE FOLLOWING U.S.G.S. 7.5' SERIES QUADRANGLES: KENNEBUNK, ME, 1983; BIDDEFORD, ME, 1956, PHOTOINSPECTED 1975, PHOTOREVISED 1970

LOCATION MAP

FIBER MATERIALS INCORPORATED
BIDDEFORD, MAINE

TRC Companies, Inc.

Figure 1.


Turnpike Connector
N
#2 Hazardous Material Storage (AOC #3)
Closed Loop Cooling Tower
Argon Storage Area (AOC #5)
#1 Hazardous Material Storage (AOC #1)
Work Area #2 (AOC #4)
Building #3 (AOC #2)
Loading Dock
Work Area #6
Work Area #1
N_2 Storage
UST-C (AOC #7)
UST-D (AOC #7)
UST-A (AOC #7)
UST-E (AOC #7)
Building #4
UST-B (AOC #7)
Parking Area
Morin Street
Building #5
Flex-Fram Area (AOC #6)
Not to Scale
Property Boundary
Catch Basin
Gravel
Trees
Fence
Gate
Grass
SITE SKETCH
FIBER MATERIALS
BIDDEFORD, MAINE
TRC Companies, Inc.
Figure 2.

MS48/2/K

FMI began manufacturing aerospace composite materials in approximately 1975. They produce carbon fiber impregnated components used as missile nose cones and rocket engine nozzles, and insulation materials used for industrial purposes.

The overall topography varies, with a topographic high of 140 feet above mean sea level (msl) along the site's southern property line. Based on the available site maps, most of the property appears to be between 140 and 120 feet above msl (USGS, 1975). There are no paved areas on the property and grass and some shrubs surround most of the buildings. The southwest corner of the site is comprised of vegetation with shrubs and trees. On the recent site visit several ledge outcrops at various locations throughout the site were noted. The surface drainage on the property collects in a series of catch basins which connects to the storm drainage system on Morin Street. According to FMI there is no permit requirement. The outfall of this drainage system flows into a Thatcher Brook tributary, then to Thatcher Brook; it then meanders to the Saco River and eventually discharges into the Atlantic Ocean (USGS, 1975, TRCC, 1992).

The access to the property is restricted by a ten foot high chain-linked fence with three strands of barbed wire on top. There is a visitor's parking area outside the fence with a pedestrian access gate. The employee's entrance is on the southwest corner of the lot in front of Building 5. Only employees may drive on the property during shift changes. The pedestrian gate and the employee vehicle gate are open from 0600 to 1900 hours, Monday through Friday to allow visitors to enter and the employee shift changes. The FMI operation runs twenty-four hours a day with two twelve hour shifts and security is present at all times (TRCC, 1992).

Land use in the area of the FMI property is a mixture of industrial and residential uses. There are 32 RCRA notifiers and 6 CERCLA sites in the Biddeford-Saco area. Abutters to the property include a residential area to the east, a vacated warehouse to the south, the Biddeford Textile Company across the street to the west, and the turnpike connector road running along the north side of the property.

There are seven areas of concern (AOC) at the FMI site. Table 1 summarizes information on the AOCs and more specific information is located in Appendix A.

SITE ACTIVITY/HISTORY

The FMI facility is located at 5 Morin Street in the Biddeford Industrial Park in Biddeford, Maine. At this location, FMI is a manufacturer of aerospace composite materials which are carbon fiber-impregnated components used as missile nose cones and rocket engine nozzles. They also manufacture insulation material used for industrial purposes. Composite materials are made by weaving metallic or synthetic materials into 2-dimensional and 3-dimensional shapes which are impregnated with resin at high temperatures and pressures (RCRA, 1984). Hazardous waste associated with these processes and quantities are summarized in Table 2 and are explained below.

The FMI site prior to development was used as a farm then a sand and gravel borrow pit. FMI bought one of the property tracts from the Town of Biddeford in 1971, a second tract in 1975 and a final tract from Richard Harper in 1975. The total acreage of all the tracts is approximately 14 acres (TRCC, 1992).

Work Area 1 is primarily where weaving takes place. Hazardous waste was generated from the production of metal "rods". These rods are very thin wire-like material. In this area the wire (rod) is spun off reels and cut to length. They were then passed through three trays of cleaning solution containing oakite, acetone, and water respectively. Currently the solutions consist of spic and span and alcohol. The solution containing oakite, acetone, and water was considered hazardous and according to FMI consisted of a very small waste stream. The manufactured product is a 3-dimensional or 2-dimensional shape of a specified configuration (i.e., nose cones, nozzles, etc.).

Work Area 2 is where the densification of the shaped fabrics or composites produced in Work Area 1 are impregnated with either petroleum pitch, coal tar pitch or a furfuryl alcohol-based resin (also referred to as P-3). The composites which are formed undergo extreme heat

TABLE 1. AREA OF CONCERN (AOC) STATUS SUMMARY

Area of Concern (AOC)	AOC Description	Startup Date/ Closure Date	Release Status	References
#1-#1 Hazardous Materials Storage Building and Nitrogen Storage Area	#1 Hazardous Materials Storage is a single structure 600 ft^3 with an 8-inch berm throughout. Nitrogen Storage Area is a tank with approximate capacity of 15,000 gallons.	1980/present	Low potential for release	TRCC, 1992
#2-Building 3	A 20,000-square foot building with ovens and incinerators. Outside is a closed-looped cooling tower.	1975/present	Release to soil and surface water.	MEDEP, 1990a TRCC, 1992
#3-#2 Hazardous Materials Storage Building	Separate locked room with an 8-inch berm attached to Work Area 2. This area is approximately 10′ x 25′.	Assumed to be 1975/present	Low potential for release	TRCC, 1992
#4-Work Area 2	Area contains impregnator vessels and graphitizers. It has an area of 13,000 ft^2.	1975/present	Low potential for release	TRCC, 1992
#5-Argon Storage Area	Estimated 15,000 gallon capacity storage tank.	Unknown	Low potential for release	TRCC, 1992
#6-Flex-Fram Area (Building 5)	Open room with a satellite storage area (two, 55-gallon drums). Building 5 is 20,000 ft^2.	Unknown	Low potential for release	TRCC, 1992
#7-Underground Storage Tanks	Five underground storage tanks with three still existing and two which were removed. They range in size from 1,000- to 4,000-gallon capacities.	1975/ present	Low potential for release	MEDEP, 1991 TRCC, 1992

TABLE 2. HAZARDOUS WASTE QUANTITY			
Substance	**Quantity or Volume/Area (lbs)[1]**	**Years of Use/ Storage**	**Source Area**
Toluene	1,350	1976/present	N/A
Furfural	2,800	1976/present	N/A
Sulfuric Acid	215	Unknown	N/A
Acetic Acid/Formic Acid	1,100	Unknown	N/A
Coal Tar Distillate	6,600	1975/present	N/A
Phenol Mixture	5,200	Unknown	N/A
Oil Waste	3,850	1976/present	N/A
Flex-Fram 605/705 Epoxy Resin	1,500	1979-1980/present	N/A
Nitric Acid	900	Unknown	N/A
H_2O with Phenol	2,200	Unknown	N/A
Rayon Condensate	400	Unknown	N/A
Oakite	300	1975/present	N/A
Toluene with Epoxy Resin	450	1975/present	N/A
Polyvinyl Alcohol Resin	475	Unknown	N/A
Furfural, Solid	1,050	1975/present	N/A
Cadmium Sulfide Slurry	110 gallons[2]	1979-1980/ discontinued	N/A

[1]Quantities based on 1991 manifests provided by Fiber Materials Incorporated.
[1]FMI, 1991[1].
[2]RCRA 1984.

treatment in vessels called carbonizers. Exhaust from the carbonizers goes through an incinerator to drive off volatiles. Next the composites are put into another vessel where they are pressurized and carbonized. The exhaust from this process goes through a scrubber. Two wastes are generated in this process: coke clinkers and spent caustic soda scrubber solutions (which has a pH greater than 12).

Fiber-form is produced in Building 3. This product is a heat resistent material which is used as insulation in industrial furnaces. Fiber, synthetic resin, and water are mixed into a slurry, cast into billets, air-dried, baked in ovens, and then graphitized at 2700°C in an induction furnace. Each of the heating units have incinerators to control their gaseous emission (TRCC, 1992; RCRA, 1984). The industrial (induction) furnaces have capacitors which contain PCBs. FMI is in the process of replacing these capacitors.

Building 4 is where the administration and research laboratories are located. In addition, high strength - small diameter fiber is produced in Building 4. Rolls of fiber are passed through a stretch oven and a box oven and then through high temperature ovens (2700°C). Exhaust gas from the ovens passes through a packed tower-recircuitating scrubber which removes hydrogen cyanide gas from the exhaust air stream. The location of this unit was not noticed during the TRC site visit. At the time of the site visit space in this building was used for research and development and general office work only. X-ray processes which occur in this building are a part of the research and development work (TRCC, 1992; RCRA, 1984).

Building 5 currently houses the process of flex-fram and previously manufactured "sputtering targets." One of the operations involved grinding down the sulfide plates which are used as "sputtering targets" in the electronic industry. A cadmium sulfide slurry waste is generated in a very small quantity as well as pieces of cadmium sulfide plates. This process was discontinued years ago according to FMI. The second process involves the production of "flex-fram" which is a flame retardant material that has a mud-like consistency. The process involves mixing various solvents and epoxy resin in a Hobart mixer. Waste epoxy resin solution is treated as hazardous waste and was manifested off-site at a rate of three 55 gallon drums in 1984.

Information regarding Hazardous Waste Area #1 and #2 as well as Work Area 6 is detailed in Appendix A under there appropriate AOC designations.

All wastes generated in each area were stored in either Hazardous Materials Storage Area #1 or #2 until manifested offsite by a licensed hauler.

On August 18, 1980 the EPA received a Notification of Hazardous Waste Activity Form from FMI. FMI then submitted RCRA form General Information, Consolidated Permits Program and Form 3 (Hazardous Waste Permit Application) which provided details of the process design capacity and also a description of the hazardous wastes handled (EPA, 1980). The MEDEP granted FMI an interim license (I-039) on September 24, 1980 as a hazardous waste storage facility (MEDEP, 1984b). The FMI facility then received an air emission license application from the MEDEP on November 25, 1981 for installation of a Class VII incinerator with an afterburner (MEDEP, 1981). FMI had been operating under their interim license pending final administrative disposition of their hazardous waste storage facility permit application. The EPA sent a letter dated June 25, 1982 requesting that FMI submit Part B RCRA permit application (EPA, 1982). FMI also received from the MEDEP a notification to file a hazardous waste facility application which had become a part of the consolidated state/federal permitting program (MEDEP, 1984a). On June 9, 1983, FMI requested conversion to generator-only status and consequently termination of its interim license for a hazardous waste storage facility (MEDEP, 1984b). That petition was approved on September 26, 1984 by the MEDEP (MEDEP, 1984b).

FMI was allowed generator status provided that they submit a certification by a registered professional engineer that no hazardous waste or waste residue remained on site except that which was in accordance with generator standards of the hazardous waste management rules (MEDEP, 1984b). E.C. Jordan Corporation Consulting Engineers prepared a statement of compliance for FMI which was accepted by the MEDEP on November 28, 1984 (MEDEP, 1984c).

According to files reviewed at the MEDEP and the EPA Region I office, FMI had three RCRA inspections and two hazardous waste site visits. From these visits there have been three Notices of Violations issued by the MEDEP. For a time table of regulatory activities, refer to Table 3.

TABLE 3. REGULATORY ACTIVITIES AT FIBER MATERIALS INCORPORATED

Date	Activity
September 24, 1980	FMI granted an interim license as a hazardous waste storage facility (MEDEP, 1984b).
November 15, 1980	FMI filed an Hazardous Waste Permit Application and RCRA Form 1 (EPA, 1992).
November 24, 1981	FMI was issued an Air Emission License (MEDEP, 1981a).
December 8, 1981	RCRA inspection documented seven violation/deficiencies (MEDEP, 1981b).
June 25, 1982	U.S. EPA requested FMI to file Part B permit application (EPA, 1982).
June 9, 1983	FMI requested conversion to generator only status therefore terminating its interim license for a hazardous waste storage facility (EPA, 1982).
January 11, 1984	MEDEP requested FMI to file a Notice of Hazardous Waste Facility Application (MEDEP, 1984a).
March 28, 1984	U.S. EPA and MEDEP issued a RCRA Industrial Survey Report (MEDEP, 1984d).
June 20, 1984	MEDEP issued a Notice of Violation based on March 28, 1984 RCRA inspection. A significant violation noted that there was no analysis performed on the petroleum pitch resin (MEDEP, 1984d).
September 26, 1984	MEDEP through a Findings of Fact and Order granted FMI small quantity generator status provided a certification from a registered professional engineer stating compliance with regulations of generator status (MEDEP, 1984b).
October 31, 1984	E.C. Jordan, Consulting Engineer certified that FMI is operating under generator status standards (MEDEP, 1984c).

TABLE 3. (CONTINUED)

Date	Activity
April 18, 1985	MEDEP Inspected FMI facility and notes several violations (MEDEP, 1985b).
June 18, 1985	Notice of Violations sent out by MEDEP to FMI based on the April 18, 1985 inspection (MEDEP, 1985b).
October 27, 1989	MEDEP conducted an inspection and violations are noted (MEDEP, 1990).
November 29, 1989	MEDEP conducted an inspection and violations are noted (MEDEP, 1990).
April 10, 1990	Notice of violations sent to FMI from MEDEP based on inspections conducted on October 27, 1989 and November 29, 1989. Phenol contaminated water leaked from the process tanks onto the floor in Building 3 and three occurrences of water containing molybdenum and nitrite were discharged into an unnamed brook (MEDEP, 1990).
December 13, 1990	FMI signed an Administrative Consent Agreement. MEDEP leveled fines to FMI (MEDEP, 1990).

In 1982, a report of a spill of polychlorinated biphenyl (PCB) was documented via an internal memorandum at the MEDEP. According to this document a capacitor shorted out spilling 3.1 gallons of PCB fluid into a power supply cabinet and onto the floor. The concentration of PCB in the liquid was not known. Clean up occurred and was documented by FMI (MEDEP, 1982). Manifest documentation of the removal of the PCB capacitor and fluid was performed by FMI (FMI, 1982).

A RCRA inspection occurred on March 28, 1984 by the U.S. EPA and the MEDEP. Following the inspection, a Notice of Violation was sent to FMI documenting that FMI had failed to analyze the petroleum pitch resin and coke clinkers which are waste by products from the petroleum pitch process to determine if they were hazardous. There also existed a discrepancy in the waste manifests (MEDEP, 1984b). The discrepancy was resolved with a written explanation and FMI provided an analysis of the petroleum pitch resin and coke clinkers conducted by E.C. Jordan. Upon receiving the results the MEDEP determined that the coke clinkers were a non-hazardous substance. The flashpoint of the petroleum pitch resin was required to be determined for compliance. The flashpoint was determined and found to be >65°C (MEDEP, 1985a). There was no letter of compliance on file at the MEDEP to classify the petroleum pitch resin as a non-hazardous waste.

The MEDEP conducted two inspections at FMI on October 27, 1989 and November 29, 1989. Based on those inspections a Notice of Violation was sent out. The significant violations relevant to this Preliminary Assessment were the following:

- A discharge of phenol contaminated water leaked from process tanks onto the floor in Building 3 (MEDEP, 1990).
- FMI did not hold a Waste Discharge License for two closed-looped cooling towers which are operated outside Building #3 and Work Area #2 (than known as Building #2). The water which is treated by the addition of Thorogard (1:150 dilution) which contains 15 mg/l molybdenum and 0.09 mg/l nitrite. Treated water was released to the storm water system and ultimately an unnamed brook (Class B water). These discharges occurred on or before January 1, 1990, March 3, 1990 and, April 6, 1990 (MEDEP, 1990).

ENVIRONMENTAL SETTING

The bedrock beneath the FMI property is believed to be a granite of Carboniferous age (MGS, 1985a). Based on the observation of several outcrops on the FMI site, bedrock could be at or near the ground surface at several locations (TRCC, 1992). The surficial soil is a Glaciomarine deposit with coarse grained facies, consisting of sand, gravel and minor amounts of silt. The topography is characterized as flat to gently sloping except where dissected by modern streams; commonly a branching network of steep-walled stream gullies (MGS, 1985b). The site consists of sand and gravel with very shallow ledge and several outcrops. According to a 1962 surficial geology map of Biddeford, the site area was previously used as an open gravel pit (TRCC, 1992).

The entire site is located within a sand and gravel aquifer. The minimum thickness of sand and gravel is believed to be 12 feet. The depth to ground water in the immediate area of the site is approximately 24 feet and downgradient of the site the water table is as shallow as 4 feet (USGS, 1985).

The 15-mile downstream pathway from the FMI facility starts with the tributary of Thatcher Brook. The tributary flows from the FMI site approximately 1.2 miles to the Thatcher Brook. The Thatcher Brook then continues 3.0 miles to the Saco River. The Saco River flows 6.8 miles to the Atlantic Ocean at 2,944 cubic feet per second (cfs). All surface water along the 15-mile downstream pathway is Class B water (Brouillet, 1992b). Class B water classification means that the water is acceptable for recreational use, fish and wildlife habitats, agricultural and industrial supply. At the outlet of the Saco River, the 15-mile downstream pathway makes an arc 5.2 miles in diameter, which includes the coastal regions of Maine and offshore islands.

The Biddeford-Saco Water District serves the communities of Biddeford, Saco, Old Orchard Beach, and the Pine Point section of Scarborough. They also stock the Kennebunk, Kennebunkport, and Wells Water District (KKW) with make up supply when the KKW district source, (the Branch Brook), runs low. The source of the Biddeford-Saco water supply is the Saco River. The pumping station is located approximately 1.8 miles upstream from the

outfall of Thatcher Brook. The pumping station is not on the 15-mile downstream pathway and is an overland distance of 2 miles northwest of the site. The town of Arundel, which is located within the four mile radius, has approximately 30 percent to 40 percent of its residents along Route 1 served by the KKW water district. The remaining population of Arundel is served by private and community wells. The portion of Kennebunkport which is included within the four mile radius have private wells (Brouillet, 1992a). The nearest private well is located less than 200 feet from the FMI site. The resident is believed, however, to be on the public water supply (TRCC, 1992). All ground water in the State of Maine is Class A meaning potable (Brouillet, 1992b). The estimated number of private wells which were based on the Arundel town report and a telecon (see reference) are located in the four mile radius of the FMI site and are indicated on Table 4 (Arundel, 1992; Brouillet, 1992a). The community wells that are located in the four mile radius and the estimated number of residents served is shown in Table 5 (see Figure 3) (Arundel, 1992).

There are a total of 260 employees who work in two 12-hour shifts. No one lives on the site. The nearest resident lives approximately 50 feet from the property line of FMI. Within the 4-mile radius of FMI the population is varied between urban, suburban, and rural. The nearest school is a High School in Biddeford located 2 miles southeast from the FMI site. The Southern Maine Medical Center is located about 1.5 miles north of the site. The total population within the 4-mile radius is approximately 8,645. For a breakdown of the population distribution refer to Table 6 and Figure 3 (U.S. Department of Commerce, 1990).

The nearest wetland to the FMI site is located about 150 feet northwest from the property line. Specific wetlands along the Saco River and in Saco Bay include several estuarine intertidal ecological systems with areas classified as emergent, unconsolidated shore and aquatic bed (USDI, 1986). The Thatcher Brook is rated moderate as a fishery habitat and rated high as a deer wintering area. High, moderate and low are ratings given by the Maine Department of Inland Fisheries and Wildlife to express the sensitivity of the area. A high rating indicates the presence of many species. Fisheries and wildlife habitat as well as special wildlife features are shown on Table 7 (MEDIFW, 1992). The letter classification is based on suitability for wildlife to prosper. Class A is the most ideal. A summary of the ecological inventory along the 15-mile downstream pathway is presented in Table 8.

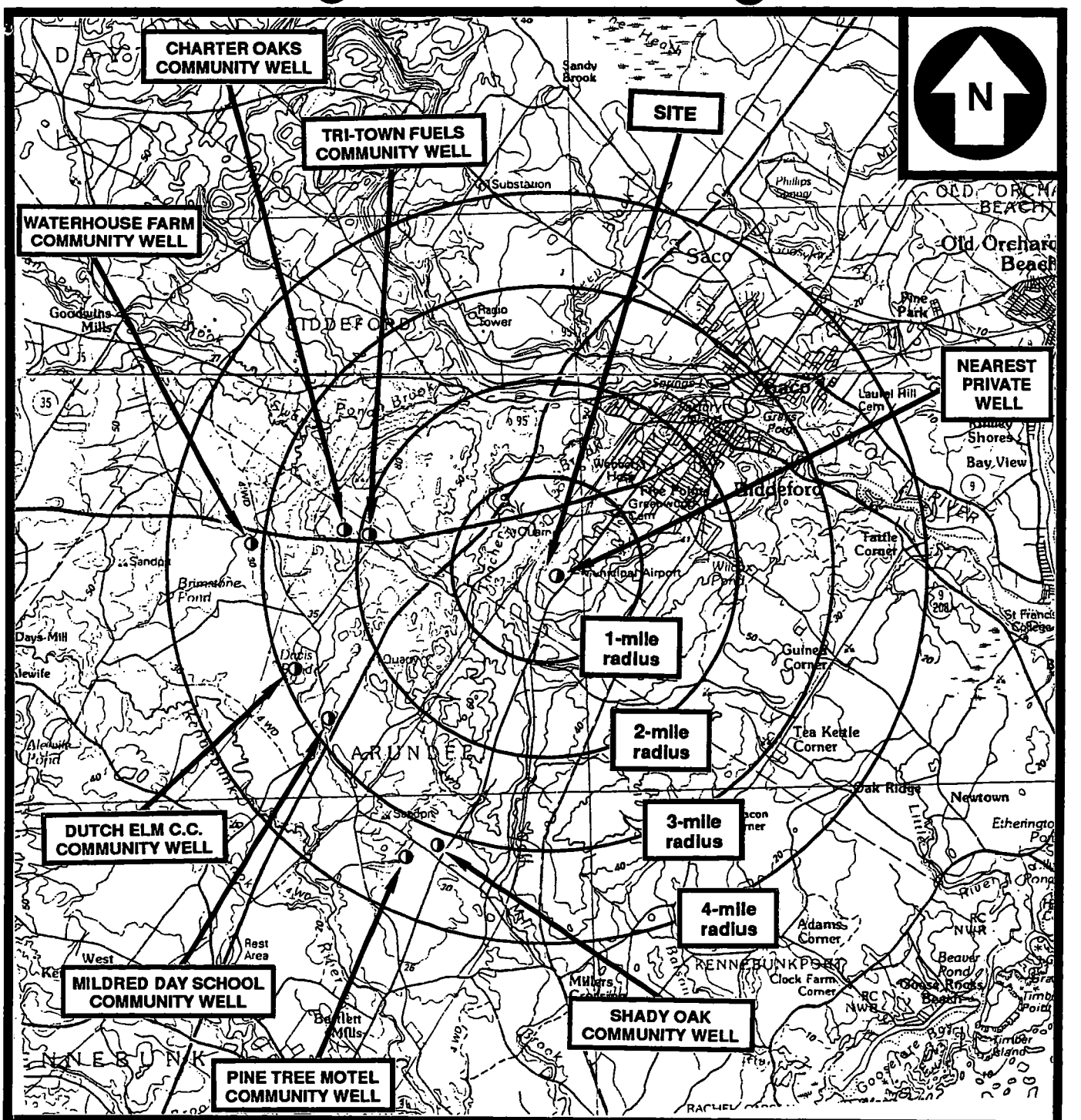
TABLE 4. ESTIMATED PRIVATE WELL DISTRIBUTION WITHIN A 4-MILE RADIUS OF FIBER MATERIALS INCORPORATED

Distance from Facility (in miles)	Town	Number of Private Wells	Residents Served	Total
0.00 - 0.25	Biddeford	1	3	3
0.25 - 0.50	Biddeford	0	0	0
0.50 - 1.00	Biddeford	0	NA	
	Arundel	28	84	84
1.00 - 2.00	Biddeford	0	NA	
	Arundel	103	309	
	Kennebunkport	2	6	315
2.00 - 3.00	Biddeford	0	NA	
	Arundel	200	600	
	Kennebunkport	0	NA	
	Saco	0	NA	600
3.00 - 4.00	Biddeford	0	NA	
	Arundel	90	270	
	Kennebunkport	20	40	
	Saco	0	NA	310
TOTAL				**1,312**

Source: Arundel, 1992, Brouillet, 1992a.

TABLE 5. ESTIMATED PUBLIC WELL DISTRIBUTION WITHIN A 4-MILE RADIUS OF FIBER MATERIALS INCORPORATED

Well Name	Distance/ Direction from FMI (in miles)	Town Served	Total Served by Well (by town)	Total Served by Well
Tri-Town Fuels	1.9/W	Arundel	25	25
Charter Oaks	2.1/W	Arundel	117	117
Dutch Elm C.C.	2.8/SW	Arundel	25	25
Mildred Day School	2.8/SW	Arundel	386	386
Waterhouse Farm	3.1/W	Arundel	unknown	unknown
Shady Oak	3.2/SW	Arundel	144	144
Pine Tree Motel	3.4/SW	Arundel	25	25
TOTAL				**722**



BASE MAP IS A PORTION OF THE FOLLOWING 30' x 60' U.S.G.S. QUADRANGLES: KITTERY, ME-NH, 1985; PORTLAND, ME-NH, 1985, PHOTOINSPECTED 1988

0 5,000 10,000 15,000

scale in feet

FOUR-MILE RADIUS MAP

FIBER MATERIALS INCORPORATED
BIDDEFORD, MAINE

TRC Companies, Inc.

Figure 3.

TABLE 6. ESTIMATED RESIDENTIAL POPULATION WITHIN A 4-MILE RADIUS OF FIBER MATERIALS INCORPORATED

Distance from facility (in miles)	Town	Population	Total
0.00-0.25	Biddeford	45	45
0.25-0.50	Biddeford	203	203
0.50-1.00	Biddeford	550	
	Arundel	84	634
1.00-2.00	Biddeford	2,235	
	Arundel	309	
	Kennebunkport	6	2,550
2.00-3.00	Biddeford	1,440	
	Arundel	600	
	Kennebunkport	0	
	Saco	570	2,610
3.00-4.00	Biddeford	750	
	Arundel	270	
	Kennebunkport	40	
	Saco	1,543	2,603
TOTAL			**8,645**

Source: U.S. Department of Commerce, 1990.

TABLE 7. SENSITIVE ENVIRONMENTS WITHIN 15 MILES DOWNSTREAM OF FIBER MATERIALS INCORPORATED

Habitats/Features	Location	Rating/Classification
Wildlife Concentration Areas	Thatcher Brook	Moderate
	Wood Island Harbor	A
	Biddeford Pool	A
	Beach Island	A
	Goosefare Bay	A
	Fortunes Rocks to Timber Island	B
	Fortunes Rocks Beach	B
	Little River	B
	Saco River North	C
	Saco River South	C
Deer Wintering Areas	Thatcher Brook	High
Colonial-Nesting Seabird Islands	Wood Island	
	Stage Island	
	Negro Island	
	Gooseberry Island	
	Beach Island	
Wading Bird Rookeries	Wood Island	
Seal Haul-Outs	Beach Island	
	Beach Island Ledges	
	Horseshoe Cove	
Shorebird Roots	Basket Island Sandbar	
	Fortunes Rocks Beach North	
	The Pool (3 sites)	
	Hills Beach	
	Stage Island	
	Rocks north of the Coast Guard Station	
	Beach Island	
	Washman Rock	
	Philip Rock	
	South Point Ledge	
Other Area of Special Concern	Pool Road	

Note: Only Wildlife Concentration Areas and Deer Wintering Areas have a Rating/Classification associated with them.

TABLE 8. WILDLIFE OCCURRENCES/USES WITHIN 15 MILES DOWNSTREAM OF FIBER MATERIALS INCORPORATED

Species Category	Common Name	Nature of Occurrence/Use
Mammals	Harbor Seal	NA
	Gray Seal	NA
Shorebirds	Gulls	Nesting Area
	Least tern*	Nesting Area
	Roseate tern*	Nesting Area
	Common tern	Nesting Area
	Piping plover	Nesting Area
Wading birds	Wading birds	Nesting Area
Seabirds	Double-crested cormorant	Nesting Area
Fish	Striped bass	Migratory Area
	Atlantic tomcod	Spawning Ground
		Migratory Area

*Protected by State legislation.

SUMMARY

Fiber Material Incorporated (FMI) currently operates an aerospace composite materials manufacturing facility at 5 Morin Street in Biddeford, Maine. They began operations in 1975. The land that FMI developed was undeveloped and previously used as a sand and gravel borrow pit. FMI produces carbon fiber impregnated components used as missile nose cones and rocket nozzles, and insulation materials used in various industries. Processes include weaving metal rods and synthetic material in 3-dimensions. After impregnation of the weaved material, then the material undergoes high temperature and pressure. They also produce insulation materials using a paper technology slurry and cast the product into various shapes. Some of the wastes associated with the FMI processes include sulfuric acid, x-ray process mixture, waste scrubber and trap residue, polyvinyl alcohol resin, hydraulic oil, Flex-Fram epoxy (phenylic resin, carbon pitch), coal tar pitch, furfural, oakite and acetone. There are several satellite collection areas that store wastes prior to going to either the #1 or #2 Hazardous Materials Storage Buildings until proper disposal by a contractor.

FMI has had several RCRA inspections by federal and state authorities. Results from these inspections yielded Notices of Violations. A significant violation was phenol contaminated water being discharged into an unnamed brook. FMI and the State of Maine signed an Administrative Consent Agreement on December 13, 1990.

Potential receptors of contamination from the FMI site include:

- The Thatcher Brook which flows to the Saco River and eventually to the Atlantic Ocean;
- Fisheries and wildlife habitats within the 15-mile downstream pathway;
- Approximately 8,645 residents of Biddeford, Arundel, Kennebunkport and Saco;
- Approximately 2,034 residents who are supplied drinking water from private and community wells.

At this time, EPA recommends that the FMI facility be deferred to the RCRA program for further evaluation.

REFERENCES

Arundel, 1992, Report of water use in the town of Arundel, 1992.

Brouillet, 1992a. Telecon with Don Gobul, Engineer, at the Kennebunk, Kennebunkport and Wells Water District, June 22, 1992.

Brouillet, 1992b. Telecon with Barry Mower of the MEDEP Water Quality Bureau, July 10, 1992.

Brouillet, 1992c. Telecon with MEDEP Water Quality Bureau, Steve Pinnet, July 9, 1992.

EPA, 1980. Form 3 Hazardous waste permit application Form 1 General Information and Notification of Hazardous Waste Activity, photocopy of documents received from EPA Region I, Boston, MA, by TRCC in May 1992.

EPA, 1982. Letter from U.S. EPA to Fiber Material requesting Part B Permit, on file Region I office, June 25, 1982.

FMI, 1982. Hazardous Waste Manifest and Shipping Paper, provided to TRCC by FMI, date received manifest June 6, 1992.

FMI, 1992. Analysis of wastewater from Building #3 floor, Fiber Materials/Peck Environmental Laboratories, June 26, 1992.

FMI, 1992a. Copy of deeds provided by David Loper of Fiber Materials Incorporated June 11, 1992.

MEDEP, 1981a. Findings of Fact and Order, Air Emission License, November 25, 1981.

MEDEP, 1981b. Trip Summary and RCRA Inspection Checklist, MEDEP, December 8, 1981.

MEDEP, 1982. Report of PCB spill at Fiber Materials, Inc. Biddeford, ME. March 24, 1982.

MEDEP, 1984a. Letter from MEDEP to Fiber Materials requesting hazardous waste facility operations, January 11, 1984.

MEDEP, 1984b. Findings of Fact and Order MEDEP, September 26, 1984.

MEDEP, 1984c. Condition Compliance, MEDEP, November 28, 1984.

MEDEP, 1985a. Laboratory Analysis Results present to MEDEP via a letter from Fiber Materials Incorporated, January 4, 1985.

MEDEP, 1985b. Notice of Violation, MEDEP, June 18, 1985.

MEDEP, 1985c. Follow-up letter acknowledging FMI's response to violations, July 19, 1985.

MEDEP, 1990. Administrative Consent Agreement, MEDEP, December 13, 1990.

MEDEP, 1990a. Air Emission License, MEDEP, August 11, 1990.

MEDEP, 1991, Underground Storage Tank Facility Registration Form, MEDEP, October 4, 1991.

MEDIFW, 1992. Fact sheets provided by the Maine Department of Inland Fisheries and Wildlife, 1992.

MGS, 1985a. Bedrock Geologic Map of Maine, Maine Geological Survey, 1985.

MGS, 1985b. Surficial Geologic Map of Maine, Maine Geological Survey, 1985.

RCRA, 1984, RCRA Industrial Survey Report, conducted by EPA and MEDEP, March 20, 1984.

TRCC, 1992. Logbook at Onsite Reconnaissance of Fiber Materials Incorporated. David Brouillet and Todd Knause, TRC Companies, 1992.

U.S. Department of Commerce, 1990. Census of Population and Housing, State of Maine, 1990.

USGI, 1986. National Wetlands Inventory, United States Department of the Interior, 1986.

USGS, 1975. 1:24,000-scale 7.5 x 15 Minute Topographic Map of Biddeford, Maine Quadrangle, United States Geological Survey Photorevised. 1975.

USGS, 1985. Hydrogeologic Data for Significant Sand and Gravel Aquifers, U.S. Geological Survey, and Maine Department of Environmental Protection, 1985.

APPENDIX A

AREAS OF CONCERN

AOC Number: 1

AOC Name: #1 Hazardous Materials Storage Building and Nitrogen Storage Area

AOC Status: Low potential for release (TRCC, 1992).

AOC Description: The #1 Hazardous Materials Storage (HMS) is a filled cinder block wall structure with a concrete slab subfloor and a wooden floor for the surface which can be removed. At the time of TRCC's visit there was not any apparent staining on the wood floor. There was no way to tell if there was any "pooling" or drains. The concrete subfloor is about 8 inches below the wood floor. The building is surrounded with a 10-foot high chain-link fence with barbed wire. The gate to the building is locked and all doors to the four separate storage areas are locked. The four storage areas consist of a room containing thirteen 55 gallon drums ready to be shipped; a room for partially filled barrels; a room of hardware for drums and a room for virgin material storage. The entire structure is 20′ x 15′ and 20′ x 10′ (refer to Figure 2) (TRCC, 1992). The Liquid Nitrogen Storage Area is an above ground storage tank approximately 15,000 gallon enclosed with a 12-foot fence with barbed wire and a locked gate (TRCC, 1992).

AOC Start-up Date: 1980 (TRCC, 1992)

AOC Closure Date: Currently in use (TRCC, 1992)

Waste Managed at AOC: All wastes and materials associated with FMI's processes are stored in the HMS. The wastes include sulfuric acid, x-ray process mixture, waste scrubber and trap residue, polyvinyl alcohol resin, vacuum pump/hydraulic oil, Flex Fram epoxy (phenylic resin, carbon pitch), coal tar pitch, furfural solid, capacitor with PCB, oakite, and acetone. Liquid nitrogen is stored in the Nitrogen Storage Area (TRCC, 1992).

Release Controls: Both areas have restricted entrances. The HMS has a 8-inch berm below the wooden floor where the material collects (TRCC, 1992).

Release History: None documented in files reviewed (TRCC, 1992).

AOC Number: 2

AOC Name: Building 3

AOC Status: Release to soil and surface water (MEDEP, 1990).

AOC Description: Fiber-Form is produced in this building. This product is a heat resistant material which is used as insulation in industrial furnaces. Fiber, synthetic resin and water

are mixed into a slurry, cast into billets, air-dried, baked in ovens, and then graphitized at 2700°C in an induction furnace. The induction furnaces have capacitors which contain PCBs. FMI is in the process of replacing these units. During the site visit they had drums of water along with polyethylene bags containing absorbent pads and booms. According to FMI officials a fire in one of the induction furnaces broke out and set the sprinkler system off. The water was collected and analyzed. The results are discussed in the "Waste Managed at AOC" subsection (TRCC, 1992). Closed-loop cooling towers are used to regulate temperature. Each of the heating units has an incinerator to control the heavy hydrocarbons which are emitted from the furnaces (RCRA, 1984; MEDEP, 1990a; TRCC, 1992). There are also two closed-loop cooling towers located outside of Building 3 and Building 2. The water that circulates within the system is treated with the addition of one part Thorogard (a biocide) to 150 parts water. This dilution contains 15 mg/l molybolenum and 0.09 mg/l nitrite. In the event of failure the closed-loop cooling tower drains automatically as the cooling system switches to city water. Prior to 1990, these emergency discharges were directed to the building-floor drains which were connected to the surface water collection system. The collection system's outfall is an unnamed tributary which flows to Thatcher Brook. There is currently a 700 gallon holding tank in the system discharge line to prevent surcharging of the storm/sewer line (MEDEP, 1990).

AOC Start-up Date: Sometime after 1975 (TRCC, 1992)

AOC Closure Date: Currently in use (TRCC, 1992)

Waste Managed at AOC: Substances accumulated by the closed-loop cooling tower are molybdenum and nitrite. The wastewater from the graphitizer fire consisted of the following: cadmium (0.26 ppm), chromium (0.03 ppm), copper (0.16 ppm), zinc (17.5 ppm), nickel (0.64 ppm), lead (0.08 ppm), and total phenol (4.4 ppm). Capacitors containing PCBs are also located in this AOC (TRCC, 1992; FMI, 1992).

Release Controls: When the cooling tower spill occurred the floor drains in the building were operable. Since that occurrence the floor drains have been sealed. No other release control systems were observed during site reconnaissance (TRCC, 1992).

Release History: Release from the closed-loop cooling tower was documented at the MEDEP (MEDEP, 1990). Drum and absorbent pads in plastic bags containing wastewater were observed during the onsite visit. Lab results documenting the analysis are discussed in the "Waste Managed at AOC" subsection (TRCC, 1992; FMI, 1992).

AOC Number: 3

AOC Name: #2 Hazardous Materials Storage (#2 HMS)

AOC Status: Low potential for release (TRCC, 1992)

AOC Description: The #2 HMS area is located on the northeast corner of Work Area 2. The outer walls are constructed of filled cinder blocks and the inside wall is sheet metal. The floor is concrete with an 8-inch berm. At the top of the berm is a suspended wooden floor which can be removed. The building is approximately 10′ x 25′. At the time of TRCC's visit there was no apparent staining on the wood floor. There was no way to tell if there was any "pooling" or drains.

AOC Start-up Date: It is estimated that the #2 HMS area was built concurrently with Work Area 2 which occurred in 1975 (TRCC, 1992).

AOC Closure Date: Currently in use (TRCC, 1992).

Waste Managed at AOC: At the time of the site reconnaissance it was noted that the labels of the 55 gallon drums listed toluene, furfuryl, furfuryl alcohol, P-3 resin, coal tar distillate, waste oil, and vinyl ester resin (TRCC, 1992).

Release Controls: The building has an 8-inch berm for secondary containment (TRCC, 1992).

Release History: None documented in files reviewed (TRCC, 1992).

AOC Number: 4

AOC Name: Work Area 2

AOC Status: Low potential for Release (TRCC, 1992).

AOC Description: Work Area 2 is attached to Work Areas 1 and 6. Impregnator vessels, hot isostatic process (HIP) vessels, and graphitizers are located in this area. Materials associated with the processes are located around each of these units. The HIP vessels are controlled with a wet scrubber. Heavy hydrocarbon fumes from each vessel combine and vent into a wet scrubber. The area is comprised of 13,000 square feet (TRCC, 1992).

AOC Start-up Date: 1975 (TRCC, 1992)

AOC Closure Date: Currently in use (TRCC, 1992)

Waste Managed at AOC: Materials associated with processes in this area include pitch, argon, toluene, furfuryl alcohol, furfuryl, scrubber residue, waste oil, pitch residue, and heavy hydrocarbon fumes.

Release Controls: The HIP vessels are contained in a room with 8-foot high walls and a solid concrete floor which is below the main floor level. They are controlled by a wet scrubber which regulates the amount of heavy hydrocarbon fumes. The impregnators melt

pitch and impregnate the pitch into the material. A vacuum line vents into a condenser and a coalescent filter before exhausting to ambient air. The condenser, (a 3-foot tall chamber with baffle plates), serves to trap some of the hydrocarbons in the pitch (MEDEP, 1990a).

Release History: None documented in files reviewed (TRCC, 1992).

AOC Number: 5

AOC Name: Argon Storage Area

AOC Status: Low potential for release (TRCC, 1992).

AOC Description: This above ground storage tank is located on the west side of Work Area 6 on the loading dock area and is used to store liquid argon. The capacity is estimated at 15,000 gallons (TRCC, 1992).

AOC Start-up Date: Unknown (TRCC, 1992)

AOC Closure Date: Currently in use (TRCC, 1992)

Waste Managed at AOC: Liquid argon (TRCC, 1992).

Release Controls: None observed on site visit (TRCC, 1992).

Release History: None documented in files reviewed (TRCC, 1992).

AOC Number: 6

AOC Name: Flex-Fram Area (Building 5)

AOC Status: Low potential for release (TRCC, 1992).

AOC Description: This area includes a satellite hazardous waste storage area consisting of two 55-gallon drums located near the exit on the south end of the building. A half barrel overpack serves as the secondary containment. This area is also where Flex-Fram is produced. Building 5 is 20,000 square feet (TRCC, 1992).

AOC Start-up Date: Unknown (TRCC, 1992)

AOC Closure Date: Currently in use (TRCC, 1992)

Waste Managed at AOC: At the time of the onsite visit one barrel contained waste epoxy resin and another barrel contained waste toluene (TRCC, 1992).

Release Controls: The storage drums were in half barrel overpacks (TRCC, 1992).

Release History: None observed during site visit or documented in files reviewed (TRCC, 1992).

AOC Number: 7

AOC Name: Underground Storage Tanks

AOC Status: Low potential for release (TRCC, 1992)

AOC Description: Three underground storage tanks (USTs) are currently being used at the FMI site. A 4,000-gallon UST (UST-A) which stores #2 fuel is located on the north side of Building 4. A 2,000-gallon UST (UST-B) on the west side of Work Area 6 stores #2 fuel. The last existing tank (UST-C) has a capacity of 1,000 gallons of #2 fuel and is located on the west side of Work Area 2. A 1,000-gallon unleaded fuel tank (UST-D) was removed in 1989± and was located on the west side of Building 3. A 2,000-gallon #2 fuel tank (UST-E) located on the east of Building 4 was removed in 1990± (TRCC, 1992).

AOC Start-up Date: UST-A, 1979; UST-B, 1980; UST-C, 1980; UST-D, 1979; UST-E, 1975 (MEDEP, 1991)

AOC Closure Date: UST-D, 1989±; UST-E, 1990± (TRCC, 1992)

Waste Managed at AOC: The UST-A, C, and E stored #2 fuel oil and UST-D stored unleaded gasoline (TRCC, 1992).

Release Controls: No additional monitoring for leakage is documented (MEDEP, 1991).

Release History: None documented in files reviewed (TRCC, 1992).

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Environmental Solutions through Technology

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☎ (508) 970-5600

September 24, 1992

Ms. Sharon Hayes
Superfund Support Section (HSS-CAN7)
U.S. EPA Waste Management Division
JFK Federal Building
Boston, MA 02203

Subject: Final PA Plus
Fiber Materials
Biddeford, ME
W.A. No. 10-1JZZ
Ref.No. 1-636-011-0-1J48
TDD No. 9108-112-ATE
CERCLIS No. MED048268890

Dear Ms. Hayes:

Enclosed is a copy of the Final PA Plus Package for Fiber Materials in Biddeford, ME. Copies of the report have been sent to the state contact under separate cover. Draft report comments submitted by the EPA and the State have been incorporated.

This report was prepared in response to Contract No. 68-W9-0033, Work Assignment 10-IJZZ. An Acknowledgement of Completion will follow shortly documenting the completion of work for this site.

If you have any questions, please do not hesitate to call.

Sincerely,

Paul A. Hughes
ARCS Program Manager

Enclosure

cc: N. Smith
E. Waterman

ch506BL

TRC
Environmental Solutions through Technology

TRC Environmental Corporation
Boott Mills South, Foot of John Street
Lowell, MA 01852
☎ (508) 970-5600

September 24, 1992

Ms. Deborah Hanley
Maine Department of Environmental Protection
State House, Station #17
Augusta, ME 04333

Subject: Final PA Plus
Fiber Materials
Biddeford, ME
W.A. No. 10-IJZZ
Ref. No. 1-636-011-0-IJ48
TDD No. 9108-112-ATE
CERCLIS No. MED048268890

Dear Ms. Hanley:

Two copies of the Final PA Plus Report for Fiber Materials in Biddeford, ME are enclosed. This Final Report has been revised in accordance with comments received from the EPA and the State.

If you have any questions, please do not hesitate to call.

Sincerely,

Paul A. Hughes
ARCS Program Manager

Enclosure

cc: N. Smith (w/o enclosure)
S. Hayes (w/o enclosure)
E. Waterman (w/o enclosure)

ch507BL